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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,561	09/15/2003	Michael J. Roche	P17786	9743
45445 7590 07/29/2009 LeMOINE PATENT SERVICES, PLLC C/O CPA GLOBAL P. O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER DOVE, TRACY MAE	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 07/29/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/662,561	Applicant(s) ROCKE ET AL.	
	Examiner TRACY DOVE	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,7,8,10-12,30-33 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,7,8,10-12,30-33 and 35-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the communication filed on 5/27/09.

Applicant's arguments have been considered, but are moot in view of the new grounds of rejection. Claims 1-3, 7, 8, 10-12, 30-33 and 35-42 are pending.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/27/09 has been entered.

Claims Analysis

As noted by Applicants, 35 USC 112, sixth paragraph has been invoked. A claim limitation will be interpreted to invoke 35 USC § 112, sixth paragraph, if it meets the following 3-prong analysis: (A) the claim limitations must use the phrase "means for" or "step for;" (B) the "means for" or "step for" must be modified by functional language; and (C) the phrase "means for" or "step for" must not be modified by sufficient structure, material or acts for achieving the specified function. See MPEP § 2181 .1.

In claim 1, the limitation "in response to the temperature" will not be given patentable weight. Any means for controlling an operating frequency of the microprocessor will read upon the means-plus-function limitation.

In claim 7, the limitation "in response to the temperature sensed by the temperature sensor" will not be given patentable weight. Any means for modifying a fluid flow will read upon the means-plus function limitation.

In claim 8, the limitation "in response to the temperature sensed by the temperature sensor" will not be given patentable weight. Any means for modifying a power output level of the fuel cell will read upon the means-plus function limitation.

In claim 30, the limitation "in response to the temperature" will not be given patentable weight. Any means for controlling a voltage provided to the integrated circuit will read upon the means-plus-function limitation.

Regarding claims 36-42, Applicant is not claiming a method of operating an electronic system. Therefore, the limitation "coupled to control voltage to the integrated circuit in response to the temperature" in claim 36 is not given patentable weight. Furthermore, the limitation "coupled to control an operating frequency of the microprocessor in response to the temperature" in claim 40 is not given patentable weight.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 31-33 and 35-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 36 and 40 recite “a controller coupled to control”, which is indefinite. It is unclear how the controller is coupled to control. Examiner suggests amending the claims to recite the controller is coupled to the integrated circuit or the controller is coupled to the microprocessor.

Claims 31 and 37 recite “the electronic system comprises a computer”, which is indefinite. The fuel cell is external to the computer so the electronic system cannot “comprise” the computer. See also claims 32, 33, 38 and Figures 7-9 of the instant specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7, 8, 10-12, 30-33 and 35-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parr et al., US 6,887,606 in view of Fukazu et al. (US 2002/0011327)

The claims are to an apparatus, which is a product. Language that suggests or makes optional, but does not limit the claims to a particular structure does not limit the scope of the claims or claim limitation. MPEP 2106c and 2111.04. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. When the prior art structure is capable of performing the intended use, it meets the claim. These limitations are given weight with regard to structure, but not with regard to function.

Parr teaches a fuel cell system method and apparatus. A controller in the fuel cell system performs various operating parameter checks at a predefined schedule, including one or more of a stack temperature check, a stack current check, a stack voltage check and/or a cell voltage check. The frequency of the checks are set relative to achieve an efficient control of the fuel cell system by selectively distributing the load on the microcontroller (abstract). Figure 1 shows a fuel cell monitoring and control system 14 comprising a fuel cell stack 12, a microprocessor 40, cooling channels 31,32, sensors 44, actuators 46 and a circuit board 38. The cooling of the fuel cell is adjusted if the stack current does not exceed the stack current failure threshold (3:40-45). Figure 17 is a flow diagram of a method of monitoring a stack temperature of the fuel cell system and adjusting cooling of the fuel cell stack in response (4:1-5). The fuel cell stack includes flow field plates 28 including a plurality of cooling channels 32. The cooling channels 32 transmit cooling air through the fuel cell stack 12. The coolant may be liquid or gas (5:28-52). The microprocessor 40 is appropriately programmed or configured to carry out fuel cell system operation (6:60-68). The fuel cell system removes excess heat from the fuel cell stack and used the excess heat to warm fuel tanks by way of a cooling system. The cooling system includes a fuel cell temperature sensor that monitors the core temperature of the fuel cell stack. The temperature is provided as input to the microprocessor (8:46-51). A hydrogen sensor heater, a fuel cell stack and a reformer are heat generating devices.

Parr does not explicitly state the coolant remove heat from the microprocessor. However, the invention as a whole would have been obvious to one having ordinary skill

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in the art at the time the invention was made because removing heat from electronic components is well known in the art. Fukazu teaches a cooling device comprising a heat sink that is provided with a passage through which coolant flows and that removes heat from electronic devices (abstract). One of skill would have found it obvious to use the coolant of Parr to cool the microprocessor of Parr in view of the teaching by Fukazu that a coolant flow may be used to remove heat from electronic devices. Furthermore, since the fuel cell is cooled by the coolant flowing through the coolant channels and the microprocessor is attached to the fuel cell (Figure 1), the fuel cell may act as a heat sink for the microprocessor. Thereby, the coolant of Parr would cool the microprocessor via cooling of the fuel cell stack.

As shown in at least Figure 1, the coolant flows through the cooling channels in the anode 22 and cathode 24. Parr mainly discusses using air as a coolant that is moved by a fan. However, Parr discloses the coolant may be a liquid. One of skill would have known and would have found it obvious to use a pump to pump a liquid coolant through the cooling system of Parr. Note the type of coolant used is not given patentable weight because the type of coolant used does not structurally limit the claimed apparatus. Claims 31-33 and 37-39 do not appear to further limit the claimed electronic system. An antenna is considered inherent in the teaching of Parr.

Response to Arguments

Applicant's arguments filed 5/27/09 have been fully considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is 571-272-1285. The examiner can normally be reached on Monday & Tuesday (9:00-7:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/TRACY DOVE/

Primary Examiner, Art Unit 1795